What is claimed is:

1. An optical component, comprising:

a signal source adapted to output a first combined optical signal having a first optical signal portion of a first frequency and a second optical signal portion of a second frequency, the first frequency being substantially greater than the second frequency; and

a controller operatively coupled to the signal source and being adapted to induce the signal source to output the first and second optical signal portions, the first optical signal portion being associated with a main communication function and the second optical signal portion being associated with a monitoring function.

2. The optical component of Claim 1, wherein the first frequency is at least approximately three orders of magnitude greater than the second frequency.

3. The optical component of Claim 1, wherein the first optical signal portion has a first spectral distribution centered around the first frequency and the second optical signal portion has a second spectral distribution centered around the second frequency.

4. The optical component of Claim 1, wherein the signal source includes a laser diode.

5. The optical component of Claim 1, wherein at least one of the signal source and the controller includes an analog source driver device.

6. The optical component of Claim 1, wherein the controller includes a main component that drives the signal source to produce the first optical signal portion, and a monitoring component that drives the signal source to produce the second optical signal portion.

7. The optical component of Claim 1, further comprising a monitoring component operatively positioned relative to the signal source and adapted to receive at least a portion of the second signal and adapted to perform a monitoring function based thereon.

8. The optical component of Claim 7, wherein the monitoring function includes at least one of a time-averaging process, a trend analysis process, and a cable plant loss process.

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9. The optical component of Claim 1, further comprising a receiver assembly adapted to receive a second combined optical signal and to separate a third optical signal portion of a third frequency and a fourth optical signal portion of a fourth frequency therefrom, the third frequency being substantially greater than the fourth frequency, the third optical signal portion being associated with the main communication function and the fourth optical signal portion being associated with the monitoring function.

10. The optical component of Claim 9, wherein the receiver assembly includes at least one of a high-pass filter and a low-pass filter adapted to separate at least one of the third and fourth optical signal portions, respectively, from the second combined optical signal.

11. The optical component of Claim 9, wherein the receiver assembly is operatively coupled to the transmitter assembly and adapted to communicate signals indicative of the second combined optical signal to the transmitter assembly, the transmitter assembly being adapted to receive the signals indicative of the second combined optical signal and to transmit the first combined optical signal based thereon.

12. An optical component, comprising:

a receiver assembly adapted to receive a combined optical signal and to separate a first optical signal portion of a first frequency and a second optical signal portion of a second frequency therefrom, the first frequency being substantially greater than the second frequency; and

a controller operatively coupled to the receiver assembly and being adapted to process the first and second optical signal portions, the first optical signal portion being associated with a main communication function and the second optical signal portion being associated with a monitoring function.

13. The optical component of Claim 12, wherein the first frequency is at least approximately three orders of magnitude greater than the second frequency.

14. The optical component of Claim 12, wherein the first optical signal portion has a first spectral distribution centered around the first frequency and the second optical signal portion has a second spectral distribution centered around the second frequency.

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15. The optical component of Claim 12, wherein the controller includes a main component that processes the first optical signal portion, and a monitoring component that processes the second optical signal portion.

16. The optical component of Claim 12, wherein the receiver assembly includes at least one of a high-pass filter and a low-pass filter adapted to separate at least one of the first and second optical signal portions, respectively, from the combined optical signal.

17. The optical component of Claim 12, further comprising a signal source adapted to output a second combined optical signal having a third optical signal portion of a third frequency and a fourth optical signal portion of a fourth frequency, the third frequency being substantially greater than the fourth frequency, the third optical signal portion being associated with the main communication function and the fourth optical signal portion being associated with the monitoring function.

18. The optical component of Claim 17, wherein the signal source includes a laser diode.

19. The optical component of Claim 17, wherein at least one of the signal source and the controller includes an analog source driver device.

20. The optical component of Claim 17, wherein the controller includes a main component that drives the signal source to produce the third optical signal portion, and a monitoring component that drives the signal source to produce the fourth optical signal portion.

21. The optical component of Claim 17, further comprising a monitoring component operatively positioned relative to the signal source and adapted to receive at least a portion of the fourth signal and adapted to perform a monitoring function based thereon.

22. The optical component of Claim 21, wherein the monitoring function includes at least one of a time-averaging process, a trend analysis process, and a cable plant loss process.

23. The optical component of Claim 17, wherein the receiver assembly is operatively coupled to the transmitter assembly and adapted to communicate signals indicative of the

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combined optical signal to the transmitter assembly, the transmitter assembly being adapted to receive the signals indicative of the combined optical signal and to transmit the second combined optical signal based thereon.

24. An aerospace vehicle, comprising:

a fuselage;

a propulsion system operatively coupled to the fuselage; and

an optical system operatively disposed at least partially within the fuselage, the optical system including an optical component having:

a signal source adapted to output a first combined optical signal having a first optical signal portion of a first frequency and a second optical signal portion of a second frequency, the first frequency being substantially greater than the second frequency; and

a controller operatively coupled to the signal source and being adapted to induce the signal source to output the first and second optical signal portions, the first optical signal portion being associated with a main communication function and the second optical signal portion being associated with a monitoring function.

25. The aerospace vehicle of Claim 24, wherein the first frequency is at least approximately three orders of magnitude greater than the second frequency.

26. The aerospace vehicle of Claim 24, wherein the first optical signal portion has a first spectral distribution centered around the first frequency and the second optical signal portion has a second spectral distribution centered around the second frequency.

27. The aerospace vehicle of Claim 24, wherein the controller includes a main component that drives the signal source to produce the first optical signal portion, and a monitoring component that drives the signal source to produce the second optical signal portion.

28. The aerospace vehicle of Claim 24, further comprising a receiver assembly adapted to receive a second combined optical signal and to separate a third optical signal portion of a third frequency and a fourth optical signal portion of a fourth frequency therefrom, the third frequency being substantially greater than the fourth frequency, the third optical signal

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portion being associated with the main communication function and the fourth optical signal portion being associated with the monitoring function.

29. The aerospace vehicle of Claim 28, wherein the receiver assembly is operatively coupled to the transmitter assembly and adapted to communicate signals indicative of the second combined optical signal to the transmitter assembly, the transmitter assembly being adapted to receive the signals indicative of the second combined optical signal and to transmit the first combined optical signal based thereon.

30. An aerospace vehicle, comprising:

a fuselage;

a propulsion system operatively coupled to the fuselage; and

an optical system operatively disposed at least partially within the fuselage, the optical system including an optical component having:

a receiver assembly adapted to receive a combined optical signal and to separate a first optical signal portion of a first frequency and a second optical signal portion of a second frequency therefrom, the first frequency being substantially greater than the second frequency; and

a controller operatively coupled to the receiver assembly and being adapted to process the first and second optical signal portions, the first optical signal portion being associated with a main communication function and the second optical signal portion being associated with a monitoring function.

31. The aerospace vehicle of Claim 30, wherein the first frequency is at least approximately three orders of magnitude greater than the second frequency.

32. The aerospace vehicle of Claim 30, wherein the first optical signal portion has a first spectral distribution centered around the first frequency and the second optical signal portion has a second spectral distribution centered around the second frequency.

33. The aerospace vehicle of Claim 30, wherein the controller includes a main component that processes the first optical signal portion, and a monitoring component that processes the second optical signal portion.

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34. The aerospace vehicle of Claim 30, further comprising a signal source adapted to output a second combined optical signal having a third optical signal portion of a third frequency and a fourth optical signal portion of a fourth frequency, the third frequency being substantially greater than the fourth frequency, the third optical signal portion being associated with the main communication function and the fourth optical signal portion being associated with the monitoring function.

35. The aerospace vehicle of Claim 34, wherein the controller includes a main component that drives the signal source to produce the third optical signal portion, and a monitoring component that drives the signal source to produce the fourth optical signal portion.

36. The aerospace vehicle of Claim 34, wherein the receiver assembly is operatively coupled to the transmitter assembly and adapted to communicate signals indicative of the combined optical signal to the transmitter assembly, the transmitter assembly being adapted to receive the signals indicative of the combined optical signal and to transmit the second combined optical signal based thereon.

37. A method of operating an optical system, comprising:

transmitting a combined optical signal having a first portion characterized by a first frequency and a second portion characterized by a second frequency, the first frequency being substantially greater than the second frequency;

receiving the combined optical signal;

separating the first and second portions;

processing the first portion to derive a primary data signal; and

processing the second portion to derive a health data signal.

38. The method of Claim 37, wherein transmitting a combined optical signal includes transmitting a combined optical signal wherein the first frequency is at least approximately three orders of magnitude greater than the second frequency.

39. The method of Claim 37, wherein transmitting a combined optical signal includes transmitting a combined optical signal wherein the first optical signal portion has a first spectral distribution centered around the first frequency and the second optical signal portion has a second spectral distribution centered around the second frequency.

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40. The method of Claim 37, wherein transmitting a combined optical signal includes transmitting a combined optical signal using a laser diode.

41. The method of Claim 37, wherein transmitting a combined optical signal includes transmitting a combined optical signal using an analog source driver device.

42. The method of Claim 37, wherein transmitting a combined optical signal includes transmitting a combined optical signal using a controller having a main component that drives the signal source to produce the first optical signal portion, and a monitoring component that drives the signal source to produce the second optical signal portion.

43. The method of Claim 37, wherein separating the first and second portions includes separating the first and second portions using at least one of a high-pass filter and a low-pass filter adapted to separate at least one of the first and second portions from the combined optical signal.

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